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ABSTRACT

This paper describes the experiences of three university instructors facilitating computer-mediated communication among three teacher training courses at Indiana University, Bloomington and Northwest campuses, and North Carolina Agricultural and Technical State University. The project utilized AltaVista Forum (now SiteScape Forum), a World Wide Web-based discussion forum. The paper offers guidance in virtual collaboration. Main discussion points: include the project setting; development of a meaningful project; the importance of modeling behavior; training students on collaboration skills, benefits of using SiteScape Forum; assessment issues; flexibility; student feedback; and anticipating problem areas. (Author/MES)

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A Journey in Virtual Collaboration: Facilitating Computer-Mediated Communication Among Pre-Service Teachers

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Abstract
Last year, three university instructors embarked on a journey to facilitate computer-mediated communication between three teacher-training courses in Indiana and North Carolina. For this project, we utilized AltaVista Forum, now SiteScape Forum, a web-based discussion forum. In this paper, we will share our experiences and offer guidance for those brave enough to undertake the endeavor of virtual collaboration. Main discussion points will include development of a meaningful project, the importance of modeling behavior, training students on collaboration skills, assessment issues and anticipating problem areas.

Introduction
Many educators are realizing the educational value of using the World Wide Web in education. Specifically, educators are finding the value of using the Web for facilitating collaborative groups. According to Harasim, Calvert and Greeneboer (1997) who discuss web-based collaborative learning "the conversations (verbalizing), multiple perspectives (cognitive restructuring), and arguments (conceptual conflict resolution) that arise in

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cooperative groups may explain why collaborative groups facilitate greater cognitive development than the same individuals achieve when working alone." Educators are able to provide their students with richer learning experiences by the use of online collaborative projects using Web-based conferencing systems.

Our goal for this project was to create a learning environment that would operate as a catalyst to promote student collaboration regarding complex issues associated with using computers in educational environments.

Setting

Three classes were involved in the collaborative project. Two were undergraduate courses at different campuses of Indiana University, Bloomington and Northwest, and one was a graduate course at North Carolina A & T. Critical to the project was our realization that these sections were comprised of very different student populations.

The Bloomington class was composed primarily of freshman, traditional 18-22 year-olds living on campus and taking their first course in the School of Education. The Northwest campus is a commuter campus, located in Gary, Indiana. This class consisted of undergraduate students enrolled in a night class, many of whom had full-time jobs and families. Interestingly, several older adults withdrew from the course in the first few weeks. Those students who remained were undergraduates ranging in age from 18 to 30. The class at North Carolina A&T also consisted of many students who had full-time jobs and families, however the students were graduate students, ranging in age from their 20s to their 50s.

Another challenge associated with the different sections was the number of times the classes met per week. The Bloomington class met three mornings a week. The North Carolina A & T course met twice weekly. The Northwest course met only once a week in the evening. Additionally, while all three classes had equal Internet access during class, most of the Bloomington students lived in residence halls with high-speed Internet access outside of class time. The NCAT students also had more frequent access to Internet-connected computers than did the Northwest students.

These differences in class meetings and Internet access created disparity in the amount of posting done by students in the various classes. The instructors addressed these issues as a group. We found that we had to adjust our initial schedule and extend the online discussion time frame in order to accommodate the different class meeting times. This was done to allow students, who had limited access to the WWW, opportunities to contribute to the conversations before and after class-time when they had access to the university computer lab.

We believe that the relationship we had prior to the project was a big bonus in our ability to collaborate well together. All had been on the IU-Bloomington campus together the previous year teaching a similar course as colleagues. These prior relationships allowed us to communicate freely, openly and honestly.

Project

The objective was to create a project in which our students engaged in meaningful, virtual interactions through the discussion of computer-related topics in education. The method used to design and develop this project is discussed in detail in "Creating a Pre-Service Teachers' Virtual Space: Issues in Design and Development of Cross-Country Collaborations" (Reinhart, Anderson, & Slowinski, 2000).

We agreed to facilitate student interactions by placing the project in a more authentic context: a problem-based learning environment. Students were asked to envision themselves as part of a professional organization of teachers, in which they shared the knowledge they gathered about using technology in the classroom.

Over the course of the semester, students worked in groups comprised of individuals from each campus. They were asked to read articles related to five areas of educational technology: equity, acceptable use, software evaluation, technology funding, and integrating technology. Each member of a group was given a different article to read, and was entrusted with the responsibility of summarizing the content for his or her group mates. For example, during the acceptable use unit, students read and summarized articles on copyright laws, Internet filtering, acceptable use policies, and plagiarism. After completion of the summaries for each unit, the group collaborated to develop a shared statement on a question related to that issue. This statement was intended to capture the issues from each article, along with the group's own sentiment. To accomplish this, students collaborated via e-mail and an asynchronous Web-based communication tool.

Fostering collaboration

Because we had such diverse student groups, teaching the students how to work as a group became even more critical than usual. We realized quickly that we could not make any assumptions about the students having prior experience with group projects, especially with conducting group projects in an asynchronous manner with other group members physically distant from each other. Not only does working in a group require a unique set of tools and protocols, but working in an online group adds to the complexity of the group work process (McDonald and Gibson, 1998).

We began the project by having instructors train their local class on how to collaborate online. We emphasized the need for the students to not wait until the last minute to begin on their synthesis statement, since it was difficult to get all the group members to consensus without having a few days to communicate. Next, we each made sure our students were aware of rules of communicating online, specifically addressing netiquette issues. We also discussed the need for each group to establish their own set of rules and group norms to create their working environment. We gave them some recommendations, such as naming a facilitator for each assignment, but ultimately left the decisions up to each group as to how they would operate.

Finally, a big challenge was to make sure the students were providing each other with constructive criticism and useful feedback on their summaries. As noted by Hall and Hall

(1991), who conducted a similar project, the students first defaulted to uninspired comments, focusing often on spelling errors and grammatical problems, rather than addressing larger issues such as coherence and fluidity of discussion points. While none of us were trained as composition instructors, we did find the need to urge students to look more deeply at each other's work and provide more substance in their remarks to each other. In addition, we posted examples of quality student work on our course web site in an effort to demonstrate well-articulated discussion.

We soon learned the need to model good communication methods for the students. The project was a test of our own ability to collaborate via a distance. In addition to monitoring the students' SiteScape Forum discussions, we also asked the students to carbon copy the instructors on all their group e-mail messages. This request gave us an opportunity to watch how the groups talked to each other, and to identify potential problems before they got out of hand. Most of the communication between the groups and the instructors were done via E-mail. However, we did find that many students asked questions/advice of their local instructors before or after class-time regarding this project. Then, depending on the question, the students would relay a summary of the face-to-face conversation electronically to their group mates. Therefore, some of the modeling was done in a traditional face-to-face conversation.

The instructors communicated with each other mainly via e-mail, though we did make a few conference calls during the semester. Again, while most of the communication was done electronically we still found the need to use non-text-based methods to communicate. In fact, at the formation stages of the project, where we did most of the extensive planning, we chose to conduct business via conference calls.

SiteScape Forum

SiteScape Forum (formerly AltaVista Forum) was chosen as the asynchronous web-based discussion forum that we would use for this project. SiteScape Forum offered a variety of functions. For example, students could engage in a threaded discussion, submit documents, and respond to polls. This tool was selected primarily because all three instructors had previously used it as students, and it was already available to one of the instructors at IU-Bloomington as part of a site license. She was able to include the students and instructors from the other sites in her forum.

The benefit of using a web-based discussion tool is that students could take part in the conversations anywhere that they had an Internet connection and web browser. Students had time to think about their responses and formulate a more in-depth answer than they would be likely to give in a classroom discussion.

Additionally, for some students, the use of the discussion forum provided them an opportunity to speak out more than they would ever have attempted during a "live" conversation. Many students are simply more comfortable expressing their opinions in this setting, considering it a safer environment.

Assessment

Evaluating the students' efforts turned out to be one of the most time-consuming aspects of the project. As with most group projects, one of the main concerns on the part of the students was that some of them would be doing the majority of the work while others earned equal credit for less work. Aware of this when designing the project, we determined that students would be held responsible for both individual and group contributions.

First, we allowed the students to rate each other on group participation. We created a web-based peer review form that students were expected to complete after each assignment. They rated themselves as well as their teammates on a scale of 1 to 4, and gave comments about each team member. The students were allowed to see the comments that were not attributed to a particular teammate. Each student's participation grade was the average of their self-score and their teammate's scores. In order to manage these scores, one of the instructors developed a spreadsheet for averaging the peer reviews. The instructors then took turns collecting the peer review scores and comments.

Second, a portion of each student's grade was determined by his or her own instructor and was based on the individual article summary. Finally, each group was assigned a group grade on their synthesis position statement. This portion of their grade was the same for each student in the group. The three instructors rotated the responsibility for grading the synthesis statements.

We recommend the use of rubrics for grading both the individual and the group synthesis statements. The rational for this is three-fold, first rubrics help instructors guide their instruction (Popham, 2000). When there are multiple instructors, such as with this project, it is important that the each instructor has a clear understanding of the criterion on which the students will be evaluated. This helps to better coach or guide the students. Second, rubrics themselves can be instructionally illuminating (Popham, 2000). When students have access to the grading rubrics they will use the rubrics to self-evaluate their work. Thus, the rubric is used as an instructional tool to help students, many of who are new to this type of collaboration, and who need the extra guidance. Finally, rubrics help with consistent and objective scoring. This is important when multiple graders are evaluating student work.

The three grades (participation, individual summary, group statement) were added together to create a total grade for each assignment. A great deal of record keeping was necessary for this grading system. Careful planning and diligence are key to the successful assessment of the students.

Also, we recommend that each instructor make the project worth approximately the same percentage of their students' final averages. Otherwise, the group of students for whom the project is most heavily weighted will feel more responsibility for the project than the others.

Flexibility

We found it important to remain flexible throughout the project. From a collegial frame of reference, our personal and professional rapport was a critical factor. Due to this relationship, we were able to recommend and adjust quickly to make the project a success. There were times that it was necessary to adjust deadlines because of different student holidays, for instance. Additionally, we significantly altered the final stages of the project based on numerous concerns with the amount of work and the time necessary for that level of collaboration. Finally, we also switched group members around once. One group was not working – only one group member completed any work, and could not be expected to read four articles just so she could write a group summary. Therefore, we divided the team up and placed them all into other groups.

Student Feedback

In order to improve future iterations of the project, we wanted to get input from the students on how they felt the project was going. One instructor placed an anonymous feedback form on the web so that students could, at any point in the project, share their perceptions about the project with the instructors. Additionally, one instructor conducted individual interviews with her students midway through the project. This information was used in making decisions about the final stage of the project.

Conclusion

In conclusion, we would like to offer some advice for those interested in online communication and collaboration.

Collegial Rapport – An essential component of our project was our personal relationship. Without this strong trusting rapport, our project would not have been successful. Accordingly, before the planning phase, spend some time getting to know your potential colleagues. Or, as we did, choose collaborators that you have a professional relationship with.

Time - It takes a considerable amount of time, planning and effort in order to make cross-country collaborations work. The time and effort are ultimately worth it when the outcomes are meaningful conversations between diverse students who are sharing, learning and intellectually growing with each other. Consequently, prior to beginning, plan to spend the previous semester planning for the implementation of such a project. In addition to planning the logistics of the project, also consider the process of how you will make the inevitable but necessary changes as the project is underway.

Feedback – Due to the novelty of web-based collaboration, feedback becomes increasingly important for students. Provide rubrics as well as examples of student work that conforms to your rubrics. This will help students as they develop new skills in non-face-to-face communication.

Modeling – An effective component of online collaboration is the integration of techniques by the instructor. The best method is to model what you want student to do.

This will require an extensive online presence with frequent interactions with students (i.e., we recommend daily interactions with students).

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